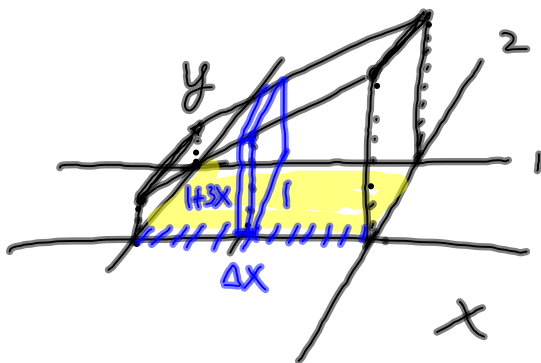


18.

 $x=2, y=1$ $ht = 1+3x$ above pt (x,y) 

$$\Delta x = \frac{2-0}{n} = \frac{2}{n}$$

$$x_i = i \Delta x = i \cdot \frac{2}{n}$$

$$\Delta V = 1 \cdot (1+3x_i) \Delta x$$

$$V \approx \sum_{i=1}^n (1+3x_i) \Delta x$$

$$\sum_{i=1}^n \left(1+3 \cdot \frac{2i}{n}\right) \frac{2}{n}$$

i	x_i
1	Δx
2	$2\Delta x$
3	$3\Delta x$
\vdots	\vdots
i	$i\Delta x$

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21. $g'(x) = f(x) = \sqrt{x^3+2}$

 g is an antiderivative of f

~~$$g(x) = \int \sqrt{x^3+2} dx$$~~

$g(3) = 5$

$g(1) = ?$

$$\int_a^3 \sqrt{x^3+2} dx = 5$$

$$g(x) = \int_3^x \sqrt{t^3+2} dt + 5$$

$$g(x) = \int_{a_3}^x \sqrt{t^3+2} dt + C$$

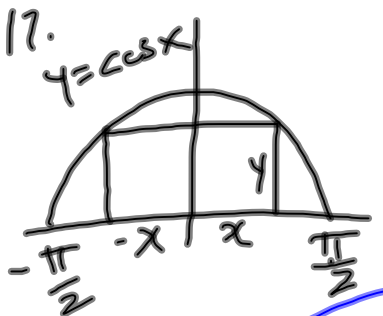
$$g(1) = \int_3^1 \sqrt{t^3+2} dt + 5$$

$$g(3) = \int_3^3 \sqrt{t^3+2} dt + C = 5$$

$$0 + C = 5$$

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17. $y = \cos x$



$A = 2xy$ min shaded area

$A = 2x \cos x$

$A' = 2x(-\sin x) + 2\cos x = 0$

solve(x) $| 0 \leq x \leq \frac{\pi}{2}$

$x = .8603$ max here

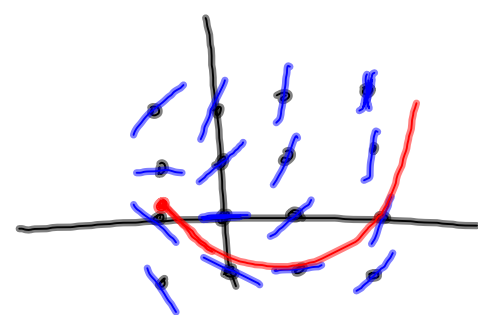
$A''(.8603) < 0$

$\int_{-\pi/2}^{\pi/2} \cos x \, dx - \text{max rect area}$

Mar 25-12:04 PM

Review 14 slopefields, instantaneous rates of change

1. $\frac{dy}{dx} = x + y$
create.



2. match

~~A) $y' = x^3$~~

~~B) $y' = \sqrt[3]{x}$~~

~~C) $\frac{dy}{dx} = \tan^{-1} x$~~

D) $y' = x^{-2/3} = \frac{1}{x^{2/3}}$

E) $y' = x^{2/3}$

p151 #2

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Instantaneous Rate vs Average Rate

$$f'(x)$$

$$f'(a)$$

$$\frac{f(b)-f(a)}{b-a}$$

1. position $s(t) = t^3 - 3t$
 find the average velocity for
 first 4 seconds $\frac{(4^3 - 3 \cdot 4) - (0)}{4 - 0}$

2. Find the speed at $t = \frac{1}{2}$ $v(t) = 3t^2 - 3$
 $\text{speed} = |3t^2 - 3|$
 $= |3 \cdot \frac{1}{4} - 3|$

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